

REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars:

In the claims

Claim 1 has been amended to clarify that the claimed method is directed to forming a resilient spring body for a pillow, cushion, or mattress. Support for the amended claim 1 is found in the original specification at page 2 and in the abstract.

Also, new independent claims 6 and 10 have been added. Claim 6 is directed to a method for manufacturing a tubular, resilient body, wherein a plurality of strips are cut from a slitted foam layer to form a plurality of tubular, resilient bodies. Support for claim 6 is found at page 7 of the original specification.

Claim 10 sets forth a method wherein a plurality of strips are cut from a slitted foam layer to form a plurality of resilient spring bodies for a pillow, cushion, or mattress. Support for claim 10 is found in the original specification at pages 2 and 7, and in the abstract.

Rejection of claims 1 and 3-5 under 35 U.S.C. § 103(a)

Claims 1 and 3-5 presently stand rejected as being unpatentable over Poppe (U.S. 4,194,255) (Poppe '255) in view of Contreras (U.S. 5,797,154), Giori et al (U.S. 6,684,433), Kuczynski et al (U.S. 5,989,699), and Shalon et al (U.S. 6,309,891). This rejection is respectfully traversed for the following reasons.

The cited references (Poppe, Contreras, Giori, Kuczynski, and Shalon), separately or in combination, fail to disclose or suggest each and every element set forth in claim 1 of the present application. Furthermore, there is no motivation or suggestion among these references for their combination in a manner to arrive at the presently claimed invention.

In particular, none of the references disclose or suggest manufacturing a tubular, resilient spring body for a pillow, cushion, or mattress by providing slits in a foam layer, cutting a strip out of the slitted foam layer, bending two opposite ends of the strip towards

each other, and fixing both opposite ends in order to form a tubular, resilient pillow, cushion, or mattress spring body, wherein the foam layer is made of a viscoelastic foam, and wherein at least a part of the cells present in the foam are broken open by compressing the foam such that a gas pressure within the cells rises to burst the cells.

As pointed out in Applicant's previous response (filed on June 8, 2006 responding to the Office Action dated March 8, 2006), the examiner notes that Poppe '255 is silent on a step of cutting the strip out of a foam layer that has slits. Finding Poppe '255 lacking in a teaching or suggestion of cutting the strip out of a foam layer that has slits, the examiner has relied on Contreras, asserting that because Contreras teaches cutting a pillow structure from a larger slab of cushioning material, "one skilled in the art would have readily appreciated cutting the block out of the foam layer or having the block already prepared to the correct dimensions as they are both conventional ways to obtain the foam strip required to make the tubular, resilient bodies and are obvious alternate expedients."

The examiner also opines that "one skilled in the art would have also readily appreciated that the slits could be provided in the foam layer prior to cutting or they could be provided in the strip (block), after being cut to the desired dimensions, since they are alternate expedients obvious over one another and both result in the same material for the tubular, resilient body."

However, neither Poppe '255 nor Contreras provide any basis for the examiner's assertions. On the contrary, Contreras simply teaches that a single contoured pillow may be completely formed by the single step of cutting the pillow from a slab of cushioning material, by molding the pillow structure, or by forming the pillow in a compression process. (see Contreras; col. 3, lines 25-33). In each case, the result of the process (cutting, molding, or compressing) is a single finished pillow. Accordingly, Contreras fails to disclose or suggest cutting a strip from a foam layer (which is prepared by the formation of slits) wherein the strip subsequently further formed into a tubular resilient body.

In contrast, according to the present invention a foam layer is prepared by the formation of slits, a strip is cut from the foam layer (not a finished pillow), and a tubular, resilient body is then formed from the strip. Clearly, the claimed method enables the

production of multiple tubular resilient bodies from a single prepared foam layer, with the advantages of reduced manufacturing steps (since the foam layer may be prepared with the formation of slits in a single step) and uniformity of the slits (and therefore the pattern of openings in each tubular resilient body formed from the strips cut from the foam layer).

Contreras provides no teaching or suggestion that the contoured pillow, formed by various processes, is suitable for further formation into a tubular, resilient body. On the contrary, once the contoured pillow is cut, molded, or compressed, it is complete and not intended for any further forming.

Since Contreras produces a fully finished pillow, there is no motivation or suggestion to apply any of the methods of Contreras (which produces a fully finished pillow) in the claimed method wherein further steps are performed after the strip is cut from the foam layer to provide a starting material.

The examiner also notes that Poppe '255 is silent on the use of viscoelastic foam. Finding Poppe '255 lacking any teaching or suggestion of the use of viscoelastic foam, the examiner turns to Giori and asserts that it would have been obvious to use viscoelastic foam as suggested by Giori. However, it must be recognized that the references to viscoelastic foam that the examiner cites in Giori discuss numerous *disadvantages* of the use of viscoelastic foam, relating to the high density of the viscoelastic foam and other problems.

In the recent final Office Action, the examiner "agrees that Giori discusses some the disadvantages of using viscoelastic foam." The examiner then asserts that "the reference also discloses that using viscoelastic foam is well known in the art and its use has certain advantages such as improved comfort and support." However, it is respectfully submitted that the teachings of Giori do not provide a motivation or suggestion for the use of viscoelastic foam, since Giori itself, in fact, teaches the use of low density foam as a *substitute to overcome the disadvantages of* viscoelastic foams.

The invention set forth by Giori "preferably features a self-inflatable, resilient open celled foam composed of polyurethane or a similar material." (*Giori*; col. 8, lines 32-34). Accordingly, Giori *teaches away from* the use of a viscoelastic foam, and therefore

provides no motivation or suggestion to modify Poppe '255 by the use of viscoelastic foam.

Accordingly, Giori cannot be read to provide any motivation or suggestion for the use of the viscoelastic foam.

The examiner further notes that Poppe '255 is silent on a step of compressing foam such that gas pressure within the cells rises to burst at least a part of the cells. Finding Poppe '255 lacking any teaching or suggestion of a step of compressing foam such that gas pressure within the cells rises to burst at least a part of the cells, the examiner turns to Kuczynski, and asserts that Kuczynski discloses that "it is well known in the art to compress a foam such that cells in said foam are opened."

Kuczynski does not disclose or suggest any use of a viscoelastic foam, and thus fails to disclose or suggest that any cited method for opening cells (of a TDI-based polyurethane foam) could be applied to a viscoelastic foam. While Kuczynski states that "when such a TDI-based system is used, the cells of the foam in the finished padded element must be substantially open," Kuczynski fails to state why the cells in this alternative (and not preferred) embodiment must be open. Indeed, there is no such requirement in a preferred embodiment that uses an MDI-based polyurethane foam.

Thus, a person of skill in the art would lack any guidance, based on the teachings of Kuczinski, regarding the expected outcome of applying any method for opening cells in a viscoelastic foam, since Kuczinski does not teach or suggest either the use of the viscoelastic foam or any result of, or reason for, opening cells in the TDI-based polyurethane foam. Further, it is submitted that Kuczinski is a non-analogous art since Kuczinski is directed to a molding process and not to a process of forming a pillow, cushion, or mattress from a strip of material cut from a foam layer.

In the recent final Office Action, the examiner asserts that "one of ordinary skill in the art would have been motivated to open the cells [of] Poppe because, according to Shalon et al, an open cell structure is advantageous for elastic springs."

It is respectfully submitted that Shalon relates to a non-analogous art. Shalon is concerned with a *capillary printing system*, and is not at all related to a type of resilient body according to the present application that can be applied in cushions, mattresses, or

the like. There is no teaching or suggestion by Shalon or any other cited references that would lead a person skilled in the art to conclude that desired characteristics of spring member in a capillary printing system would be similarly desired in a spring body for a cushion, mattress, pillow, or the like.

It is respectfully submitted that a person skilled in an art related to cushions, mattresses, or the like, would not turn to Shalon, or any other reference describing a capillary printing system, for teachings relating to the manufacture of cushions, mattresses, or the like.

Referring to Contreras, which discusses the use of a slow-recovery or viscoelastic foam, there is no teaching or suggestion that the viscoelastic foam may be altered in any manner. There is no motivation or suggestion set forth in Contreras to modify the viscoelastic foam by opening cells as set forth in the claimed invention, which is noted in the present application to provide improved air circulation and allow the foam to spring in a softer manner.

There is no teaching or suggestion that these results of such a modification of the viscoelastic foam would be desirable in Contreras' pillow. On the contrary, it is respectfully submitted that the improved air circulation that results from the opened cells would operate *counter to* a stated benefit of the unaltered viscoelastic foam of retaining heat (see Contreras; col. 3, line 21), and therefore Contreras teaches away from such a modification.

In the recent final Office Action, the examiner asserts that "Contreras never makes [a statement that an open celled structure would reduce the ability of Contreras' foam to retain heat], since the reference is completely silent as to whether the foam is open-celled or closed-cell."

Applicant notes that Giori, cited by the examiner, states that a viscoelastic foam's "cell structure is so tight that it is difficult to deflate, self-inflate, *or pass air through* the cells" (Giori; col. 1, lines 35-38)(emphasis added). Applicant submits that, according to Giori's teachings, since it is difficult to pass air through a viscoelastic foam it follows that such a foam is less "breathable" and therefore inherently more insulative. Accordingly,

Applicant submits that such a foam would be more capable of retaining heat than a foam (such as a more open-celled foam) wherein air flow or circulation is enhanced.

While the examiner is correct in stating that Contreras "is completely silent as to whether the foam is open-celled or closed-cell," it follows that Contreras does not teach or suggest an open cell foam, since it is completely silent on this issue. It further follows that, given the desirability of retaining heat set forth at line 21 of column 3 of Contreras, without further guidance as to which type of foam to be used a person skilled in the art would choose a foam that is more insulative than less. Referring to the teaching of Giori discussed above, the person skilled in the art would select a more closed-cell foam rather than a more open-celled foam for its greater insulating capability which arises from the restricted air flow taught by Giori. Therefore, Contreras in view of Giori teaches away from selection of an open cell foam in Contreras' pillow.

It is respectfully submitted that, for at least these reasons, the cited references fail to form a prima facie case of obviousness of claim 1 because 1) the cited references, even taken together, fail to teach or suggest each and every element set forth in claim 1; 2) there is no motivation or suggestion for combining or modifying the cited references in a manner to arrive at the present invention (and some of the references teach away from any such combination or modification); and 3) the cited references provide no expectation of success in any such combination. Accordingly, it is respectfully submitted that claim 1 and dependent claims 3-5 are allowable, and withdrawal of the rejection is requested.

New claims

Claim 6 is directed to a method for manufacturing a tubular, resilient body, wherein a plurality of strips are cut from a slitted foam layer to form a plurality of tubular, resilient bodies, and claim 10 sets forth a method wherein a plurality of strips are cut from a slitted foam layer to form a plurality of resilient spring bodies for a pillow, cushion, or mattress.

It is respectfully submitted that none of the references disclose or suggest a method wherein a plurality of strips are cut from a slitted foam layer to form a plurality of tubular,

resilient bodies. Therefore, claims 6 and 10, as well as their respective dependent claims 7-9 and 11-13, are allowable over the cited references.

Conclusion

Every effort has been made to place the application fully in condition for allowance, and to remove all issues raised by the Examiner in the Official Action.


In view of the amendments to the claims, and in further view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is requested that claims 1 and 3-13 be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicant's attorney, the Examiner is invited to contact the undersigned at the numbers shown.

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Date: November 21, 2006

Respectfully submitted,


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